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HUNTSVILLE, ALABAMA

VOLUME II

SATURN IB MISSION PLAN
AND TECHNICAL INFORMATION CHECK LIST

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FOREWORD

The SATURN IB Mission Plan and Technical Information Check List is divided into two volumes: Volume I - confidential, and Volume II - unclassified.

Volume I contains the following information about each flight vehicle: flight missions, flight plan, vehicle configuration, stage schedules (fabrication to launch), and flight vehicle weights.

Volume II contains the following information about each flight vehicle: launch vehicle and payload data, launch vehicle configuration, flight test objectives, and flight test measuring program.

Unless otherwise noted, vehicles SA-206 through SA-210 are identical to SA-205. Vehicles SA-211 and SA-212 are spares.

Information in this document is the best available at the time of publication. Because of a lack of documentation in some areas, comments and suggestions are solicited. A comment sheet is made part of this document for that purpose. The comment sheet should be directed to Mr. O. E. Moon, R-P&VE-VA.

SATURN IB MISSION PLAN AND
TECHNICAL INFORMATION CHECKLIST
VOLUME II

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SECTION I. GENERAL

1. SCOPE.

This document contains technical information relative to the SATURN IB configuration, test objectives, measuring program, and payload. The type of information and method of coverage are described in the following paragraphs. The data for the SATURN IB Launch Vehicle and payload are contained in Tables 1 and 2, respectively.

2. SATURN IB CONFIGURATION.

This information, contained in Section II, is divided into three areas of coverage: S-IB Stage, S-IVB Stage, and SATURN IB Instrument Unit. The major components and subassemblies of each of the three assemblies are listed in checklist form (according to the manufacturer's generation breakdown). Component and subassembly drawing numbers effective for specific launch vehicles are included.

3. SATURN IB TEST OBJECTIVES.

This information, contained in Section III, consists of the test objectives to be accomplished by the complete SATURN IB Launch Vehicle, its two stages and Instrument Unit. The test objective items peculiar to a specific launch vehicle mission are indicated with an "X" in the column under the appropriate vehicle number. After post flight evaluation, a letter indicating the "percent attainment of the test objective" will replace the "X" in the column. The percent attainment information will serve as a history for the test objectives.

4. SATURN IB MEASURING PROGRAM.

This information, contained in Section IV, is divided into three areas of coverage: S-IB Stage, S-IVB Stage, and Instrument Unit. The parameters to be measured and the number of measurements for a particular mission are tabulated. After the mission has been flown the number of useable measurements obtained during the flight will be recorded to serve as a history.

5. ILLUSTRATIONS.

Section V contains illustrations of interest to the user of this document.

Table 1. SATURN IB Launch Vehicle Data

| Item | S-IB Stage | S-IVB Stage | Instrument Unit |
|--|--|--|--|
| Manufacturer | Chrysler Corporation | Douglas Aircraft | MSFC |
| Dimensions Length Diameter Span Across Fins Fin Area | 80.2 ft. (24.5 m.) 21.4 ft. (6.5 m.) 40.7 ft. (12.4 m.) 53.5 ft. ² (5.0 m. ²) each (8 fins) | 59.1 ft. (18.0 m.) 21.7 ft. (6.6 m.) Not Applicable Not Applicable | 3.0 ft. (.9 m.) 21.7 ft. (6.6 m.) Not Applicable Not Applicable |
| Main Propulsion System Engines Total Nominal Thrust Propellants Nominal Mixture Ratio (Oxidizer to Fuel) Expansion Ratio Oxidizer NPSH Req'd. Fuel NPSH Req'd. Turbine Propellants Engine Mounting | Rocketdyne H-1 (8) 1,600,000 lbs. (sea level) (7,116,000 N) LOX & RP-1 2.26:1 8:1 35 ft. (10.7 m.) of LOX 35 ft. (10.7 m.) of RP-1 LOX & RP-1 Inboard (4) 32 in. (81 cm.) radius 3° Cant Angle Outboard (4) 95 in. (241 cm.) radius 6° Cant Angle Hydraulic +8.0° square pattern (outboard engines only) 15°/sec. each plane 31 radians/sec. ² | Rocketdyne J-2 (1) 200,000 lbs. (vacuum) (890,000 N) LOX & LH ₂ 5:1 27.5:1 25 ft. (7.6 m.) of LOX 130 ft. (39.6 m.) of LH ₂ LOX & LH ₂ Stage Centerline Hydraulic +7.0° square pattern 8°/sec. each plane 30 radians/sec. ² | Not Applicable |
| Actuators Gimbal Angle Gimbal Rate Gimbal Acceleration | | | |

Note: Quantities are given in both English and International System of Units.

Table 1. SATURN IB Launch Vehicle Data (Cont'd)

| Item | S-IB Stage | S-IVB Stage | Instrument Unit |
|---|---|--|---|
| Pressurization System Oxidizer Container | Initial - helium from ground source S-IB Burn - Gox Helium | Helium Initial - helium from ground source S-IVB Burn - GH_2 | Not Applicable |
| Fuel Container | | | |
| Pressure - Oxidizer | 46 psia (31.7 N/cm. ² abs.) | 44 psia (30.4 N/cm. ² abs.) | |
| Pressure-Fuel | 17 psig (11.7 N/cm. ² gage) | 42 psia (29.0 N/cm. ² abs.) | |
| Ullage-Oxidizer | 1.5% | 9.9% | |
| Ullage-Fuel | 1.8% | 17.6% | |
| Environmental Control System | | | |
| Preflight Conditioning (Air) | Aft Compartment Instrument Cannisters F1 & F2 | Aft Compartment | I. U. plus S-IVB fwd. skirt |
| Preflight Purge (GN_2) | Aft Compartment Instrument Cannisters F1 & F2 | Aft Compartment | I. U. plus S-IVB fwd. skirt |
| Flight | Not Applicable | Not Applicable | Methanol & water in closed loop system |
| Auxiliary Propulsion System | Not Applicable | | Not Applicable |
| Engines | | TAPCO (6) | |
| Nominal Thrust | | 150 lbs. (Vacuum) | |
| Propellants | | each (666 newtons) Hypergolic (UDMH/ N_2H_4 & N_2O_4) | |
| Arrangement | | Two modules containing three engines each located on aft skirt | |

Table 1. SATURN IB Launch Vehicle Data (Cont'd)

| Item | S-IB Stage | S-IVB Stage | Instrument Unit |
|--|--|--|---|
| <p>Separation System Severance Method</p> <p>Retro Motors Propellants Arrangement</p> <p>Ullage Motors Propellants Arrangement</p> | <p>Not Applicable</p> | <p>Short Coast Single Plane Mode Frangible Nuts (4) at aft interstage/aft skirt interface</p> <p>Thiokol TE-29-IB (4)</p> <p>Solid</p> <p>Equally spaced circumferentially on aft interstage</p> <p>Thiokol TX-280 (3)</p> <p>Solid</p> <p>Equally spaced circumferentially on aft skirt</p> | <p>Not Applicable</p> |
| <p>Astrionics Systems Guidance</p> <p>Telemetry Links</p> <p>Tracking</p> <p>Electrical</p> | <p>Roll & pitch program during S-IB burn</p> <p>PAM/FM/FM (2) - 240.2 mc & 244.3 mc.</p> <p>SS/FM - 252.4 mc</p> <p>PCM/FM/FM - 256.2 mc</p> <p>Not Applicable</p> | <p>Path adaptive guidance mode during S-IVB burn</p> <p>SS/FM - 258.2 mc</p> <p>Not Applicable</p> | <p>All-inertial guidance system</p> <p>PAM/FM/FM (2) - 250.7 mc & 245.3 mc</p> <p>SS/FM - 259.7 mc</p> <p>PCM/FM/FM - 255.1 mc</p> <p>C-Band Radar</p> <p>AZUSA</p> <p>ODOP</p> <p>Mistram</p> <p>Radar Altimeter</p> <p>Minitrack</p> <p>AROD</p> <p>Batteries - 28 vdc</p> <p>56V Power Supply</p> <p>Master Measuring Voltage Supply - 28 vdc to 5 vdc</p> |
| | <p>Batteries - 28 vdc</p> <p>450 VA Inverter</p> <p>28 vdc to 115 vac 400 cps three phase</p> <p>Master Measuring Voltage Supply - 28 vdc to 5 vdc</p> | <p>Batteries - 28 vdc</p> <p>Inverter-Converter - 28 vdc to 115 & 2 vac 400 cps</p> <p>Single Phase and 117, 22 & 5 vdc</p> <p>Master Measuring Voltage Supply - 28 vdc to 5 vdc</p> | |

Table 2. SATURN IB Payload Data

| Item | Manufacturer | Length | Dia. | Functional Status | | | | | Propulsion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | Cond. | Launch Vehicle Mission | | | | | Engine(s) | Motor (s) | Launch Vehicle Mission | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | SA-201 | SA-202 | SA-203 | SA-204 | SA-205 | | | SA-201 | SA-202 | SA-203 | SA-204 | SA-205 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Launch Escape System | North American Aviation | 400 in. (1016 cm.) | 26 in. (66 cm.) | Inert Live | | | | | | | Tower jettison Launch escape Pitch control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: Quantities are given in both English and International Systems of Units.

SECTION II.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-------|------------------------------------|----------|------------|------------|------------|------------|------------|
| 1. | S-IB Stage Assy. | 60C10002 | X | X | | | |
| 1.1 | Propellant Container Assy. | 60C10003 | X | X | | | |
| 1.1.1 | LOX Center Container Unit Assy. | 60C10004 | X | X | | | |
| | 105 LOX Container Assy. | 60C10014 | X | X | | | |
| | Tail Unit Assy. | 60C10013 | X | X | | | |
| | Spider Beam Assy. | 60C10015 | X | X | | | |
| 1.1.2 | LOX Container Unit Assy. No. 1 | 60C10005 | X | X | | | |
| 1.1.3 | LOX Container Unit Assy. No. 2 | 60C10006 | X | X | | | |
| 1.1.4 | LOX Container Unit Assy. No. 3 | 60C10007 | X | X | | | |
| 1.1.5 | LOX Container Unit Assy. No. 4 | 60C10008 | X | X | | | |
| 1.1.6 | Fuel Container Unit Assy. No. 1 | 60C10009 | X | X | | | |
| 1.1.7 | Fuel Container Unit Assy. No. 2 | 60C10010 | X | X | | | |
| 1.1.8 | Fuel Container Unit Assy. No. 3 | 60C10011 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|----------|------------------------------------|----------|------------|------------|------------|------------|------------|
| 1.1.1.9 | Fuel Container Unit Assy. No. 4 | 60C10012 | X | X | | | |
| 1.1.1.10 | Instrument Assy. No. 1 | 60C10233 | X | X | | | |
| 1.1.1.11 | Instrument Assy. No. 2 | 60C10234 | X | X | | | |
| 1.2 | Fin I Assy. | 60C10321 | X | X | | | |
| 1.3 | Fin II Assy. | 60C10322 | X | X | | | |
| 1.4 | Fin III Assy. | 60C10323 | X | X | | | |
| 1.5 | Fin IV Assy. | 60C10324 | X | X | | | |
| 1.6 | Fin V Assy. | 60C10325 | X | X | | | |
| 1.7 | Fin VI Assy. | 60C10326 | X | X | | | |
| 1.8 | Fin VII Assy. | 60C10327 | X | X | | | |
| 1.9 | Fin VIII Assy. | 60C10328 | X | X | | | |
| 1.10 | Flame Shield | 30C03300 | X | X | | | |
| 1.11 | Rocket Engine Mod. 1 | 60C20411 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|------|------------------------------------|----------|------------|------------|------------|------------|------------|
| 1.12 | Rocket Engine Mod. 2 | 60C20412 | X | X | | | |
| 1.13 | Rocket Engine Mod. 3 | 60C20413 | X | X | | | |
| 1.14 | Rocket Engine Mod. 4 | 60C20414 | X | X | | | |
| 1.15 | Rocket Engine Mod. 5 | 60C20415 | X | X | | | |
| 1.16 | Rocket Engine Mod. 6 | 60C20416 | X | X | | | |
| 1.17 | Rocket Engine Mod. 7 | 60C20417 | X | X | | | |
| 1.18 | Rocket Engine Mod. 8 | 60C20418 | X | X | | | |
| 1.19 | Pyrotechnic Instl. | 60C20446 | X | X | | | |
| 1.20 | Hydraulic System Instl. | 60C20440 | X | X | | | |
| 1.21 | Instrumentation System | | | | | | |
| | TM Assy., F1 (PAM/FM/FM) | 50C12016 | X | X | | | |
| | RF Assy., F1 | 50C12196 | X | X | | | |
| | TM Assy., F2 (PAM/FM/FM) | 50C12016 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|------------------------------------|----------|------------|------------|------------|------------|------------|
| | RF Assy., F2 | 50C12196 | X | X | | | |
| | | | | | | | |
| | TM RF Coupler | 60C50074 | X | X | | | |
| | | | | | | | |
| | TM Calibration Assy. | 50C12011 | X | X | | | |
| | | | | | | | |
| | Remote Digital Submultiplexer | 50C12089 | X | X | | | |
| | | | | | | | |
| | TM Assy., S1 (SS/FM) | 50C12195 | X | X | | | |
| | | | | | | | |
| | RF Assy., S1 | 50C12196 | X | X | | | |
| | | | | | | | |
| | Power Divider (2 required) | 50C12173 | X | X | | | |
| | | | | | | | |
| | TM Power Divider | 50C10186 | X | X | | | |
| | | | | | | | |
| | Vibration Multiplexer, S1 | 50C12092 | X | X | | | |
| | | | | | | | |
| | PCM/DDAS Assy., P2 | 50C12190 | X | X | | | |
| | | | | | | | |
| | PCM/RF Assy., P2 | 50C12187 | X | X | | | |
| | | | | | | | |
| | TM Multiplexer, P2 | 50C12191 | X | X | | | |
| | | | | | | | |
| | TM Antenna (2 required) | 50C10342 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|------------------------------------|----------|------------|------------|------------|------------|------------|
| | Tape Recorder | 50C10338 | X | X | | | |
| | | | | | | | |
| | Measuring Rack Selector | 50C10284 | X | X | | | |
| | | | | | | | |
| | Selector Rack Assy. | 50C10365 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50034 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50035 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50038 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50040 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50044 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50046 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50048 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50049 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50052 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50053 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|------|---|----------|------------|------------|------------|------------|------------|
| | Measuring Rack | 60C50054 | X | X | | | |
| | | | | | | | |
| | Measuring Rack | 60C50055 | X | X | | | |
| | | | | | | | |
| 1.22 | Destruct System | | | | | | |
| | | | | | | | |
| | Destruct System Controller (2 required) | 50C01076 | X | X | | | |
| | | | | | | | |
| | No Destruct Delay Plug | 40C30058 | X | X | | | |
| | | | | | | | |
| | Command Receiver & Decoder (2 required) | 50C12172 | X | X | | | |
| | | | | | | | |
| | Command Antenna (4 required) | 50C12171 | X | X | | | |
| | | | | | | | |
| 1.23 | Control System | | | | | | |
| | | | | | | | |
| | Rate Gyro | 50C32498 | X | X | | | |
| | | | | | | | |
| | Control Accelerometer, Yaw | 50C32496 | X | X | | | |
| | | | | | | | |
| | Control Accelerometer, Pitch | 50C32497 | X | X | | | |
| | | | | | | | |
| 1.24 | Electrical System | | | | | | |
| | | | | | | | |
| | Master Measuring Voltage Supply | 40C20002 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SA TURN IB CONFIGURATION S-IB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|-------------------------------------|----------|------------|------------|------------|------------|------------|
| | Power Supply | 50C10363 | X | X | | | |
| | Battery (2 required) | 60C40052 | X | X | | | |
| | Power Distributor | 50C01138 | X | X | | | |
| | Measuring Distributor | 60C41000 | X | X | | | |
| | Main Distributor | 50C01466 | X | X | | | |
| | Propulsion System Distributor | 50C01196 | X | X | | | |
| | Tail Measuring Distributor | 60C41025 | X | X | | | |
| | Tail Measuring Distributor | 60C41026 | X | X | | | |
| | AC Amplifier | 50C10382 | X | X | | | |
| | DC Amplifier | 50C10388 | X | X | | | |
| | DC Amplifier | 50C10394 | X | X | | | |
| | Selector Switch | 40C30640 | X | X | | | |
| | EBW Firing Unit | 50C00902 | X | X | | | |

Note: X - Drawing number is applicable to the flight vehicle number under which the symbol appears.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|---------|-------------------------------------|----------|------------|------------|------------|------------|------------|
| 1. | S-IVB Stage Assy. | 1A74633 | -1 | -501 | -503 | -505 | |
| 1.1 | Instrumentation Instl. | 1A74913 | -1 | | | | |
| | | 1A74914 | | -1 | | | |
| | | 1A74915 | | | -1 | | |
| | | 1A74916 | | | | -1 | |
| 1.2 | Vehicle Structures Assy. | 1A74634 | -1 | -1 | -1 | -1 | |
| 1.2.1 | Forward Skirt Assy. | 1A49630 | -1 | -1 | -1 | -1 | |
| 1.2.1.1 | T/M Antenna Cable Sys. Instl. | 1A69211 | -1 | -1 | -1 | -1 | |
| 1.2.1.2 | R/S Antenna Cable Sys. Instl. | 1A69209 | -1 | -1 | -1 | -1 | |
| 1.2.1.3 | T/M & R/S Antennas Instl. | 1A69210 | -1 | -1 | -1 | -1 | |
| 1.2.2 | LO2 & LH2 Tank Assy. | 1A39303 | -503 | -503 | -503 | -503 | |
| 1.2.2.1 | Thrust Structure Instl. | 1A39312 | -1 | -1 | -1 | -1 | |
| 1.2.3 | Aft Skirt Instl. | 1A78302 | -1 | -1 | -1 | -1 | |
| 1.2.4 | Exterior Tunnel Instl. | 1A39313 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-------|--|----------|------------|------------|------------|------------|------------|
| 1.2.5 | LH ₂ Tank Insulation Instl. | 1A39314 | -1 | -1 | -1 | -1 | |
| 1.3 | Markings Instl. | | | | | | |
| 1.4 | Complete Propulsion Sys. Instl. | 1A39318 | -503 | -503 | -503 | -503 | |
| 1.4.1 | Engine Instl. | 1A66894 | -1 | -1 | -1 | -1 | |
| 1.4.2 | Engine Chilldown Instl. | 1A59098 | -505 | -505 | -505 | -505 | |
| 1.4.3 | Automatic Leak Check Pneu. Sys. Instl. | 1A87691 | -505 | -505 | -505 | -505 | |
| 1.4.4 | Main Oxidizer Tank Components Instl. | 1A39321 | -505 | -505 | -505 | -505 | |
| 1.4.5 | Main Fuel Tank Components Instl. | 1A39322 | -505 | -505 | -505 | -505 | |
| 1.4.6 | Main Fuel Tank Repressurization Pneu. Instl. | 1A39323 | -505 | -505 | -505 | -505 | |
| 1.4.7 | Main Oxidizer Tank Pressurization Pneu. Instl. | 1A39325 | -505 | -505 | -505 | -505 | |
| 1.4.8 | Main Fuel Tank Pressurization Pneu. Instl. | 1A39326 | -505 | -505 | -505 | -505 | |
| 1.5 | Stage Elect. Equip. Instl. | 1A49601 | -1 | -1 | -1 | -1 | |
| 1.5.1 | Forward Skirt Elect. Equip. Instl. | 1A49602 | -1 | -1 | -1 | -1 | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|---------|---|----------|------------|------------|------------|------------|------------|
| 1.5.1.1 | Panel Mounted Elect. Equip. Instl. | 1A78949 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | P/U Electronics Assy. | 1A59358 | | | | | |
| | | | | | | | |
| | FM Power Amplifier | 1A77080 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | Point Level Transducer Control Assy. | | | | | | |
| | | | | | | | |
| | Inverter Converter Static Electronics Assy. | 1A66212 | | | | | |
| | | | | | | | |
| | Range Safety Receiver EBW Firing Unit Assy. | | | | | | |
| | | | | | | | |
| | Forward Control Distributor Mounting Assy. | 1A77040 | -501 | -501 | -501 | -501 | |
| | | | | | | | |
| | Forward Power Distributor Mounting Assy. | 1A74917 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | Range Safety Receiver Assy. | GFE | | | | | |
| | | | | | | | |
| | Single Sideband Translator Assy. | 1A74058 | | | | | |
| | | | | | | | |
| | Subcarrier Oscillator & Amplifier Assy. | 1A67749 | | | | | |
| | | | | | | | |
| | Digital Data Acquisition Assy. | 1A74049 | | | | | |
| | | | | | | | |
| | Prime-High Level Multiplexer Assy. | 1A72734 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | Slow Speed Multiplexer Assy. | 1A74045 | | | | | |
| | Bi-Level Multiplexer Assy. | | | | | | |
| | Calibration Command Central Decoder Assy. | 1A74051 | | | | | |
| | Central Calibration Assy. | 1A74064 | | | | | |
| | FM/DDAS Relay Assy. | 1A67921 | | | | | |
| | Bi-Directional Coupler Assy. | 1A69214 | -1 | -1 | -1 | -1 | |
| | | 1A69214 | -501 | -501 | -501 | -501 | |
| | RF Power Detector | 1A74776 | | | | | |
| | C/O Module Coaxial Switch | 1A69213 | | | | | |
| | SS/FM Transmitter | 1A58842 | | | | | |
| | C/O Module RF Dummy Load Assy. | | | | | | |
| | RF Multiplexer Assy. | 1A69212 | | | | | |
| | RS RF Power Divider Assy. | 1A74778 | -1 | -1 | -1 | -1 | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SA TURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|---------|--|----------|------------|------------|------------|------------|------------|
| | Stripline Divider Component Board Assy. | 1A69215 | -1 | -1 | -1 | -1 | |
| | Instrumentation Network Excitation Assy. | | | | | | |
| | | | | | | | |
| 1.5.1.2 | Forward Skirt Battery Instl. | 1A49537 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| 1.5.2 | LH ₂ Tank Mass Probe Instl. | 1A49551 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| 1.5.3 | LO ₂ Tank Mass Probe Instl. | 1A49553 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| 1.5.4 | Aft Skirt Elect. Equip. Instl. | 1A49609 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| 1.5.4.1 | Control Distributor Mounting Assy. | 1A77040 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| 1.5.4.2 | Panel Mounted Elect. Equip. Instl. | 1A49562 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | Aft Control Distributor Mounting Assy. | 1A77040 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | Ullage Rocket EBW Firing Unit Box Assy. | | | | | | |
| | | | | | | | |
| | Ullage Rocket Jettison EBW Firing Unit Box Assy. | | | | | | |
| | | | | | | | |
| | Sequencer Assy. | 1A67840 | -1 | -1 | -1 | -1 | |
| | | | | | | | |
| | Flight Sequencer Switch Selector Box Assy. | | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | Point Level Transducer Control Assy. | | | | | | |
| | Inverter Chilldown Electrical Assy. | 1A74039 | -1 | -1 | -1 | -1 | |
| | 28V Power Distributor Assy. Instl. | 1A74975 | -1 | -1 | -1 | -1 | |
| | 56V Power Distributor Assy. Instl. | 1A93590 | -1 | -1 | -1 | -1 | |
| | 1.5.4.3 Aft Skirt Battery Instl. | 1A49538 | -1 | -1 | -1 | -1 | |
| | 1.6 Stage Harness Instl. | 1A87337 | - | | | | |
| | | 1A87338 | | - | | | |
| | | 1A87339 | | | - | | |
| | | 1A87340 | | | | - | |
| | 1.7 S-IVB Sys. Elect. Schematic | | | | | | |
| | 1.7.1 Control Sys. Elect. Schematic | | | | | | |
| | 1.7.2 Instrumentation Sys. Elect. Schematic | | | | | | |
| | 1.8 Hydraulic Sys. Instl. | 1A39589 | | | | | |
| | 1.8.1 Thermal Isolator Assy. | 1A86847 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|---------|--|----------|------------|------------|------------|------------|------------|
| 1.8.1.1 | Engine Driven Hydraulic Pump | 1A66240 | | | | | |
| 1.8.1.2 | Main Pump Inlet Switch | 1A74764 | -1 | -1 | -1 | -1 | |
| 1.8.1.3 | Temperature Control Switch | 1A74765 | -1 | -1 | -1 | -1 | |
| 1.8.2 | Auxiliary Motor Driven Hyd. Pump | 1A66241 | | | | | |
| 1.8.3 | Hydraulic Sys. Check Valves | 1A66245 | | | | | |
| 1.8.4 | Hydraulic Actuator Assy. | 1A66248 | -1 | -1 | -1 | -1 | |
| 1.8.5 | Accumulator Reservoir Assy. | 1A78155 | -1 | -1 | -1 | -1 | |
| 1.9 | Destruct Sys. Inert Parts Instl. | | | | | | |
| 1.10 | Separation Sys. Inert Parts Instl. | | | | | | |
| 1.11 | Forward Interstage Environmental Control Distribution Sys. | 1A69491 | -1 | -1 | -1 | -1 | |
| 1.12 | Aft Interstage Environmental Control Distribution Sys. | 1A67979 | -1 | -1 | -1 | -1 | |
| 1.13 | Auxiliary Propulsion Sys. Instl. | 1A83786 | -1 | -1 | -1 | -1 | |
| 1.13.1 | APS Structure Instl. | 1A79921 | | | | | |

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| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|--------|---|----------|------------|------------|------------|------------|------------|
| 1.13.2 | APS Propellant System Instl. | 1A82259 | -1 | -1 | -1 | -1 | |
| 1.13.3 | Pressurization Sys. Instl. | 1A79372 | | | | | |
| 1.13.4 | Automatic Leak Check Instl. | 1A89550 | | | | | |
| 1.13.5 | Engine Instl. | 1A65684 | | | | | |
| 1.13.6 | Disconnect Instl. | | | | | | |
| 1.13.7 | Wiring Support Instl. | | | | | | |
| 1.14 | Ullage Rocket Jettison Inert Parts Instl. | | | | | | |
| 1.15 | Stage Support Instl. | 1A95632 | | | | | |
| 1.15.1 | Forward Skirt Support Instl. | 1A95663 | | | | | |
| 1.15.2 | Forward Dome Support Instl. | 1A95634 | | | | | |
| 1.15.3 | Aft Skirt Support Instl. | 1A95635 | | | | | |
| 1.15.4 | Aft Dome Support Instl. | 1A95636 | | | | | |
| 1.15.5 | Thrust Structure Support Instl. | 1A95637 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION S-IVB STAGE | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|--------|--------------------------------------|----------|------------|------------|------------|------------|------------|
| 1.15.6 | Tank Internal Support Instl. | 1A95638 | | | | | |
| 1.15.7 | Tunnel Support Instl. | 1A95639 | | | | | |
| 2. | Aft Interstage Assy. | 1A58682 | -1 | -1 | -1 | -1 | |
| 2.1 | Electrical Equipment Instl. | 1A81870 | -1 | -1 | -1 | -1 | |
| 2.1.1 | Electrical Disconnect Instl. | 1A82614 | -1 | -1 | -1 | -1 | |
| 2.1.2 | Separation EBW Box Instl. | 1A49540 | -1 | -1 | -1 | -1 | |
| 2.2 | Support Instl. | 1A95640 | | | | | |
| 3. | Ullage Rocket Attachment Kit | | | | | | |
| 4. | Ullage Rocket Ignition Explosive Kit | | | | | | |
| 5. | Ullage Rocket Fairing Nose Cover Kit | | | | | | |
| 6. | Ullage Rocket Motor | 1A81960 | | | | | |
| 7. | Ullage Rocket Fairing Kit | 1A78894 | | | | | |
| 8. | Ullage Rocket Jettison Explosive Kit | 1A84701 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| 1. | Instrument Unit Assy. | | | | | | |
| 1.1 | Instrument Unit Structure | | | | | | |
| 1.2 | Thermoconditioning System | | | | | | |
| | Panel Mounting and Thermal Conditioning | 20M42000 | | | | | |
| | Coolant Pump Assy. | 20M42001 | | | | | |
| | Water Boiler | 20M42002 | | | | | |
| 1.3 | Platform Gas Bearing Supply System | | | | | | |
| 1.4 | Guidance and Control System | | | | | | |
| | Inertial Platform Assy., ST-124M-4 | 50M22101 | | | | | |
| | Platform Electronic Assy., ST-124M-4 | 50M22103 | | | | | |
| | Advanced Guidance Computer | 50M35010 | | | | | |
| | Data Adapter | 50M35011 | | | | | |
| | Switch Selector Mod. 1 | 50M04008 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|-----------|------------|------------|------------|------------|------------|
| | Inertial Data Box, ST-124M-4 | 50M22105 | | | | | |
| | Command Decoder | 50M12264 | | | | | |
| | Command Receiver | 50M10697 | | | | | |
| | Command Power Divider | 50M12173 | | | | | |
| | Command Antenna (2 required) | 50M12171 | | | | | |
| | Flight Control Computer | 50M32550 | | | | | |
| | Control Signal Processor | 50M35500 | | | | | |
| | Control Horizon Sensor | 50M04005 | | | | | |
| | Control - E. D. S. Rate Gyro Package | 50M35021 | | | | | |
| | Control Accelerometer (yaw) | D50M32496 | | | | | |
| | Control Accelerometer (pitch) | D50M32497 | | | | | |
| | Control Acceleration Switch | 50M35025 | | | | | |
| 1.5 | Instrumentation Systems | | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SA TURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|--|----------|------------|------------|------------|------------|------------|
| | Telemeter Assy., F1 (PAM/FM/FM) | 50M12206 | | | | | |
| | | | | | | | |
| | Telemeter Assy., F2 (PAM/FM/FM) | 50M12207 | | | | | |
| | | | | | | | |
| | RF Assy., F1 | 50M12205 | -1 | | | | |
| | | | | | | | |
| | RF Assy., F2 | 50M12205 | -3 | | | | |
| | | | | | | | |
| | Slow Speed Multiplexer Assy. | 50M12208 | | | | | |
| | | | | | | | |
| | Multiplexer Assy., P1 (PCM/FM/FM) | 50M12212 | | | | | |
| | | | | | | | |
| | PCM/RF Assy. | 50M12211 | | | | | |
| | | | | | | | |
| | Telemeter PCM/DDAS Assy. | 50M12210 | | | | | |
| | | | | | | | |
| | DDAS Computer Interface Unit | 50M12216 | | | | | |
| | | | | | | | |
| | Remote Digital Submultiplexer | 50M10458 | | | | | |
| | | | | | | | |
| | Remote Digital Multiplexer | 50M12214 | | | | | |
| | | | | | | | |
| | Remote Digital Multiplexer | 50M12215 | | | | | |
| | | | | | | | |
| | Telemeter Assy., S1 (SS/FM) | 50M12209 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | RF Assy., S1 | 50M12205 | -5 | | | | |
| | Telemeter Calibrator Assy. | 50M12011 | | | | | |
| | Telemeter RF Coupler | 50M10269 | | | | | |
| | Telemeter Power Divider | 50M10186 | | | | | |
| | Telemeter Antenna (2 required) | 50M12284 | | | | | |
| | Measuring Rack | 50M12271 | -1 | | | | |
| | Measuring Rack | 50M12272 | -1 | | | | |
| | Measuring Rack | 50M12273 | -1 | | | | |
| | Measuring Rack | 50M12274 | -1 | | | | |
| | Measuring Rack | 50M12275 | -1 | | | | |
| | Measuring Rack | 50M12276 | -1 | | | | |
| | Measuring Rack | 50M12277 | -1 | | | | |
| | Measuring Rack | 50M12278 | -1 | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | Measuring Rack | 50M12279 | -1 | | | | |
| | | | | | | | |
| | Measuring Rack Selector | 50M12270 | | | | | |
| | | | | | | | |
| | Tape Recorder | 50M10338 | | | | | |
| | | | | | | | |
| 1.6 | Tracking Systems | | | | | | |
| | | | | | | | |
| | C-Band Transponder | 50M12261 | | | | | |
| | | | | | | | |
| | C-Band Antenna | 50M10347 | | | | | |
| | | | | | | | |
| | Minitrack Transmitter | 50M12290 | | | | | |
| | | | | | | | |
| | Minitrack Power Divider | 50M12050 | | | | | |
| | | | | | | | |
| | Minitrack Antenna (2 required) | 50M12051 | | | | | |
| | | | | | | | |
| | Azusa Transponder (Type C) | 50M12266 | | | | | |
| | | | | | | | |
| | Azusa R. I. Filter Assy. | 50M12267 | | | | | |
| | | | | | | | |
| | Azusa Antenna | 50M10677 | | | | | |
| | | | | | | | |
| | Mistram Transponder | 50M12268 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | Mistram Antenna (2 required) | 50M10343 | | | | | |
| | | | | | | | |
| | Radar Altimeter | 50M12262 | | | | | |
| | | | | | | | |
| | Radar Altimeter Antenna | 50M12263 | | | | | |
| | | | | | | | |
| | ODOP Transponder | 50M12181 | | | | | |
| | | | | | | | |
| | ODOP Antenna, Receive | 50M10626 | | | | | |
| | | | | | | | |
| | ODOP Antenna, Transmit | 50M10349 | | | | | |
| | | | | | | | |
| | AROD Assy. | | | | | | |
| | | | | | | | |
| | AROD Tracking Antenna | 50M12281 | | | | | |
| | | | | | | | |
| | AROD Tracking Antenna | 50M12282 | | | | | |
| | | | | | | | |
| | AROD Command Antenna | 50M12283 | | | | | |
| | | | | | | | |
| 1.7 | Electrical System | | | | | | |
| | | | | | | | |
| | Platform AC Power Supply | 50M22106 | | | | | |
| | | | | | | | |
| | 56 Volt Power Supply Assy. | 40M20236 | | | | | |

Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

| II. | SATURN IB CONFIGURATION INSTRUMENT UNIT | Dwg. No. | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|-----|---|----------|------------|------------|------------|------------|------------|
| | Master Measuring Voltage Supply | 40M20881 | | | | | |
| | | | | | | | |
| | Minitrack Battery | 40M20773 | | | | | |
| | | | | | | | |
| | Battery (4 required) | | | | | | |
| | | | | | | | |
| | Auxiliary Power Distributor | 40M37213 | | | | | |
| | | | | | | | |
| | Auxiliary Power Distributor | 40M37214 | | | | | |
| | | | | | | | |
| | Control Distributor | 40M37210 | | | | | |
| | | | | | | | |
| | Power Distributor | 40M37212 | | | | | |
| | | | | | | | |
| | Measuring Distributor | 40M37208 | | | | | |
| | | | | | | | |
| | Measuring Distributor | 40M37209 | | | | | |
| | | | | | | | |
| | E. D. S. Distributor | 40M37211 | | | | | |
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Note: The part configuration effective for a particular vehicle consists of the drawing number combined with the number under the applicable vehicle.

SECTION III.

| III. SATURN IB TEST OBJECTIVES | | SA- 201 | SA- 202 | SA- 203 | SA- 204 | SA- 205 |
|--------------------------------|---|------------|------------|------------|------------|------------|
| 1. | Vehicle Test Objectives | | | | | |
| 1.1 | Confirm aerodynamic and dynamic characteristics through the following measurements: | X | X | X | X | |
| | Measure pitch, yaw, and roll rates and angle of attack as a function of flight time | X | X | X | X | |
| | Measure longitudinal and lateral acceleration as a function of flight time | X | X | X | X | |
| | Determine vehicle bending modes and frequencies for engine start and holddown, launch, and flight | X | X | X | X | |
| 1.2 | Confirm structural and thermal characteristics through the following measurements: | X | X | X | X | |
| | Determine bending moment versus vehicle station for prelaunch, launch and flight | X | X | X | X | |
| | Measure sound intensity for engine start and holddown, launch and flight | X | X | X | X | |
| | Measure internal and external pressure environments as a function of flight time | X | X | X | X | |
| | Measure internal and external thermal environments as a function of flight time | X | X | X | X | |
| 1.3 | Demonstrate S-IB Stage - S-IVB Stage compatibility | X | X | X | X | |
| 1.4 | Demonstrate S-IVB Stage - Instrument Unit compatibility | X | X | X | X | |

Legend: An "X" indicates that the test objective is applicable to the vehicle. After post flight evaluation, the "X" is replaced with a letter which indicates the percent attainment of the test objective. A=100%, B=75 to 99%, C=50 to 74%, D=25 to 49%, and E=0 to 24%.

| III. SATURN IB TEST OBJECTIVES | SA-201 | SA-202 | SA-203 | SA-204 | SA-205 |
|--|--------|--------|--------|--------|--------|
| 2. S-IB Stage Test Objectives | | | | | |
| 2.1 Demonstrate the propulsion system capability through the following measurements: | X | X | X | X | |
| Measure oxygen and fuel flow rates as a function of engine burning time | X | | | | |
| Measure oxygen and fuel residuals | X | | | | |
| Measure oxygen and fuel turbopumps speed as a function of engine burning time | X | | | | |
| Measure gas pressure at the turbine inlet as a function of engine burning time | X | | | | |
| Measure oxygen and fuel pressures and temperatures at pump inlets as a function of engine burning time | X | | | | |
| Measure combustion chamber pressure as a function of engine burning time | X | | | | |
| Measure engine cutoff transients | X | | | | |
| 2.2 Demonstrate the propellant utilization system capability | X | | | | |
| 2.3 Demonstrate the hydraulic system capability | X | | | | |
| 2.4 Demonstrate the oxygen and fuel container pressurization systems capability | X | | | | |

Legend: An "X" indicates that the test objective is applicable to the vehicle. After post flight evaluation, the "X" is replaced with a letter which indicates the percent attainment of the test objective. A=100%, B=75 to 99%, C=50 to 74%, D=25 to 49%, and E=0 to 24%.

| III. SATURN IB TEST OBJECTIVES | SA-201 | SA-202 | SA-203 | SA-204 | SA-205 |
|--|--------|--------|--------|--------|--------|
| 3. S-IVB Stage Test Objectives | | | | | |
| 3.1 Demonstrate the propulsion system capability through the following measurements: | X | X | X | X | |
| Measure LO ₂ and LH ₂ flow rates as a function of engine burning time | X | | | | |
| Measure LO ₂ and LH ₂ residuals | X | | | | |
| Measure LO ₂ and LH ₂ turbopumps speed as a function of engine burning time | X | | | | |
| Measure propellant pressures and temperatures at the turbine inlets as a function of engine burning time | X | | | | |
| Measure LO ₂ and LH ₂ pressures and temperatures at pump inlets as a function of engine burning time | X | | | | |
| Measure combustion chamber pressure as a function of burning time | X | | | | |
| Measure engine start and cutoff transients | X | | | | |
| 3.2 Demonstrate the oxygen and fuel container pressurization systems capability | X | | | | |
| 3.3 Demonstrate the hydraulic system capability | X | | | | |
| 3.4 Demonstrate the propellant utilization system capability | X | | | | |

Legend: An "X" indicates that the test objective is applicable to the vehicle. After post flight evaluation, the "X" is replaced with a letter which indicates the percent attainment of the test objective. A=100%, B=75 to 99%, C=50 to 74%, D=25 to 49%, and E=0 to 24%.

| III. SATURN IB TEST OBJECTIVES | | SA-201 | SA-202 | SA-203 | SA-204 | SA-205 |
|--------------------------------|--|--------|--------|--------|--------|--------|
| 3.5 | Demonstrate retrorocket capability | X | X | X | X | |
| 3.6 | Demonstrate ullage motor capability | X | X | X | X | |
| 3.7 | Demonstrate auxiliary propulsion system capability | X | X | X | X | |
| 3.8 | Evaluate the structure through the following measurements: | X | X | X | X | |
| | Measure vibration frequencies and amplitudes and extent of thrust structure deformation resulting from engine thrust and gimbal action | X | X | X | X | |
| | Measure aerodynamic loads on S-IVB/S-IB interstage and determine effectiveness of controlled venting during flight | X | X | X | | |
| | Determine structural effects of heat load from aerodynamic heating during ascent phase of flight | X | X | X | X | |
| | Determine effectiveness of slosh baffles and vortex suppression devices | X | X | | | |
| | Verify that structural effects of heat load from engine exhaust is negligible | X | X | | | |
| 3.9 | Demonstrate the Astrionics systems capability | X | X | X | X | |

Legend: An "X" indicates that the test objective is applicable to the vehicle. After post flight evaluation, the "X" is replaced with a letter which indicates the percent attainment of the test objective. A=100%, B=75 to 99%, C=50 to 74%, D=25 to 49%, and E=0 to 24%.

SECTION IV.

| IV. | SATURN IB MEASURING PROGRAM S-IB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| 1. | S-IB Stage Flight Measurements - Total | 301 | | 353 | | | | | | | |
| 1.1 | Acceleration - Total | 5 | | 3 | | | | | | | |
| | Longitudinal | 1 | | 1 | | | | | | | |
| | Yaw | 2 | | 1 | | | | | | | |
| | Pitch | 2 | | 1 | | | | | | | |
| 1.2 | Acoustic - Total | 2 | | 2 | | | | | | | |
| | Upper Container | 1 | | 1 | | | | | | | |
| | Engine Shroud | 1 | | 1 | | | | | | | |
| 1.3 | Temperature - Total | 76 | | 76 | | | | | | | |
| | Gas Generator Chamber | 0 | | 0 | | | | | | | |
| | Heat Exchanger | 1 | | 1 | | | | | | | |
| | Engine Nozzle | 2 | | 2 | | | | | | | |
| | Gear Case Lubricant | 8 | | 8 | | | | | | | |
| | Hydraulic Oil | 4 | | 4 | | | | | | | |
| | LOX Pump Bearing | 8 | | 8 | | | | | | | |
| | Fuel Pump Inlet | 0 | | 0 | | | | | | | |
| | LOX Pump Inlet | 8 | | 8 | | | | | | | |
| | GOX Control Valve | 1 | | 1 | | | | | | | |
| | Fuel | 4 | | 4 | | | | | | | |
| | Pressurization Gas - Fuel Container | 0 | | 0 | | | | | | | |
| | Pressurization Gas - LOX Container | 0 | | 0 | | | | | | | |
| | Tail Section Base | 2 | | 2 | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
 "B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | Engine Compartment | 8 | | 8 | | | | | | | |
| | Heat Shield | 13 | | 13 | | | | | | | |
| | Flame Shield | 1 | | 1 | | | | | | | |
| | Engine Shroud Skin | 2 | | 2 | | | | | | | |
| | Tail Section Skin | 2 | | 2 | | | | | | | |
| | Fin Skin | 0 | | 0 | | | | | | | |
| | S-IB/S-IVB Interstage Skin | 5 | | 5 | | | | | | | |
| | Retro Motor Fairing | 1 | | 1 | | | | | | | |
| | S-IB/S-IVB Interstage Compartment | 2 | | 2 | | | | | | | |
| | Instrument Compartment | 2 | | 2 | | | | | | | |
| | High Pressure Spheres | 1 | | 1 | | | | | | | |
| | Battery | 1 | | 1 | | | | | | | |
| | | | | | | | | | | | |
| 1.4 | Pressure - Total | 73 | | 73 | | | | | | | |
| | Combustion Chamber | 8 | | 8 | | | | | | | |
| | Gas Generator Fuel Injector | 8 | | 8 | | | | | | | |
| | Gas Generator LOX Injector | 8 | | 8 | | | | | | | |
| | Turbine Inlet | 8 | | 8 | | | | | | | |
| | Fuel Pump Inlet | 4 | | 4 | | | | | | | |
| | LOX Pump Inlet | 4 | | 4 | | | | | | | |
| | GOX Control Valve | 1 | | 1 | | | | | | | |
| | Pressurization Gas - Fuel Container | 1 | | 1 | | | | | | | |
| | Pressurization Gas - LOX Container | 1 | | 1 | | | | | | | |
| | Actuators | 8 | | 8 | | | | | | | |
| | Hydraulic Source | 4 | | 4 | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | Control Equipment | 2 | | 2 | | | | | | | |
| | High Pressure Spheres | 1 | | 1 | | | | | | | |
| | Tail Section Base | 3 | | 3 | | | | | | | |
| | Engine Compartment | 1 | | 1 | | | | | | | |
| | Heat Shield | 1 | | 1 | | | | | | | |
| | Container Skirts | 2 | | 2 | | | | | | | |
| | 60° Fairing | 1 | | 1 | | | | | | | |
| | Retro Motors | 4 | | 4 | | | | | | | |
| | Instrument Compartment | 1 | | 1 | | | | | | | |
| | Spider Beam Fairing | 0 | | 0 | | | | | | | |
| | Seal Plate | 1 | | 1 | | | | | | | |
| | S-IB/S-IVB Interstage | 1 | | 1 | | | | | | | |
| | | | | | | | | | | | |
| 1.5 | Vibration - Total | 46 | | 46 | | | | | | | |
| | | | | | | | | | | | |
| | Thrust Chamber Dome | 8 | | 8 | | | | | | | |
| | Turbine Gear Box | 8 | | 8 | | | | | | | |
| | Spider Beam | 6 | | 6 | | | | | | | |
| | Instrument Panel | 3 | | 3 | | | | | | | |
| | Containers and Supports | 4 | | 4 | | | | | | | |
| | Thrust Structure | 12 | | 12 | | | | | | | |
| | Electrical Components | 5 | | 5 | | | | | | | |
| | | | | | | | | | | | |
| 1.6 | Guidance and Control-Hydraulic Oil Level | 4 | | 4 | | | | | | | |
| | | | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| 1.7 | Signals - Total | 31 | | 37 | | | | | | | |
| | Selector Switch | 1 | | 1 | | | | | | | |
| | First Motion | 1 | | 1 | | | | | | | |
| | Cutoff Signals (inboard and outboard) | 2 | | 2 | | | | | | | |
| | Engine Cutoff | 8 | | 8 | | | | | | | |
| | Fuel Level Cutoff | 2 | | 2 | | | | | | | |
| | LOX Level Cutoff | 2 | | 2 | | | | | | | |
| | Fuel Depletion Cutoff | 2 | | 2 | | | | | | | |
| | Retro Motor EBW Voltage | 2 | | 8 | | | | | | | |
| | Destruct EBW Voltage | 2 | | 2 | | | | | | | |
| | Separation EBW Voltage | 2 | | 2 | | | | | | | |
| | Retro Motor Ignition | 1 | | 1 | | | | | | | |
| | Separation Prestart | 1 | | 1 | | | | | | | |
| | LOX Emergency Pressure Switch | 1 | | 1 | | | | | | | |
| | LOX Relief Control | 1 | | 1 | | | | | | | |
| | Cutoff and Destruct | 2 | | 2 | | | | | | | |
| | GOX Control Valve | 1 | | 1 | | | | | | | |
| | | | | | | | | | | | |
| 1.8 | Liquid Level - Total | 18 | | 18 | | | | | | | |
| | Fuel Level - Discrete | 4 | | 4 | | | | | | | |
| | LOX Level - Discrete | 5 | | 5 | | | | | | | |
| | Fuel Level - Continuous | 4 | | 4 | | | | | | | |
| | LOX Level - Continuous | 5 | | 5 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|------|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| 1.9 | Voltage, Current & Frequency - Total | 10 | | 10 | | | | | | | |
| | AGC Voltage | 1 | | 1 | | | | | | | |
| | Bus Voltage | 3 | | 3 | | | | | | | |
| | Battery Voltage | 2 | | 2 | | | | | | | |
| | Measuring Voltage | 2 | | 2 | | | | | | | |
| | Battery Current | 2 | | 2 | | | | | | | |
| | | | | | | | | | | | |
| 1.10 | Angular Velocity - Total | 4 | | 4 | | | | | | | |
| | Pitch | 2 | | 2 | | | | | | | |
| | Yaw | 2 | | 2 | | | | | | | |
| | | | | | | | | | | | |
| 1.11 | Strain - Total | 24 | | 72 | | | | | | | |
| | Container Mounting Stud | 8 | | 8 | | | | | | | |
| | Tension Ties | 16 | | 16 | | | | | | | |
| | Spider Beam | 0 | | 48 | | | | | | | |
| | | | | | | | | | | | |
| 1.12 | RPM-Turbine | 8 | | 8 | | | | | | | |
| | | | | | | | | | | | |
| 2. | S-IB Stage Blockhouse Measurements - Total | 70 | | 73 | | | | | | | |
| | | | | | | | | | | | |
| 2.1 | Temperature - Total | 32 | | 38 | | | | | | | |
| | Gear Case Lubricant | 8 | | 8 | | | | | | | |
| | Hydraulic Oil | 0 | | 4 | | | | | | | |
| | LOX Pump Bearing | 8 | | 8 | | | | | | | |
| | Instrument Compartment | 0 | | 2 | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IVB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| 3. | S-IVB Stage Flight Measurements - Total | 417 | | | | | | | | | |
| 3.1 | Acceleration - Longitudinal | 1 | | | | | | | | | |
| 3.2 | Acoustic - Forward Skirt | 6 | | | | | | | | | |
| 3.3 | Temperature - Total | 159 | | | | | | | | | |
| | Thrust Chamber | 1 | | | | | | | | | |
| | Fuel Injection | 1 | | | | | | | | | |
| | LH ₂ Turbopump | 7 | | | | | | | | | |
| | LOX Turbopump | 8 | | | | | | | | | |
| | LH ₂ Circulation | 3 | | | | | | | | | |
| | LOX Circulation | 3 | | | | | | | | | |
| | Gas Generator | 7 | | | | | | | | | |
| | Heat Exchanger | 2 | | | | | | | | | |
| | GH ₂ System | 3 | | | | | | | | | |
| | Helium System | 11 | | | | | | | | | |
| | LH ₂ Supply Line | 2 | | | | | | | | | |
| | LOX Supply Line | 3 | | | | | | | | | |
| | Hydraulic System | 5 | | | | | | | | | |
| | P. U. System | 1 | | | | | | | | | |
| | Thrust Structure | 2 | | | | | | | | | |
| | Aft Interstage | 3 | | | | | | | | | |
| | Aft Skirt | 11 | | | | | | | | | |
| | LH ₂ Container | 11 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IVB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | LOX Container | 4 | | | | | | | | | |
| | Forward Skirt | 10 | | | | | | | | | |
| | Ullage | 12 | | | | | | | | | |
| | Auxiliary Propulsion System | 24 | | | | | | | | | |
| | Tunnels & Fairings | 6 | | | | | | | | | |
| | Base Region | 6 | | | | | | | | | |
| | Electrical Components | 13 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.4 | Pressure - Total | 62 | | | | | | | | | |
| | Thrust Chamber | 1 | | | | | | | | | |
| | LH ₂ Injector | 1 | | | | | | | | | |
| | LOX Injector | 1 | | | | | | | | | |
| | LH ₂ Turbopump | 3 | | | | | | | | | |
| | LOX Turbopump | 6 | | | | | | | | | |
| | LH ₂ Circulation | 2 | | | | | | | | | |
| | LOX Circulation | 2 | | | | | | | | | |
| | Gas Generator | 3 | | | | | | | | | |
| | Heat Exchanger | 1 | | | | | | | | | |
| | GH ₂ System | 2 | | | | | | | | | |
| | Helium System | 4 | | | | | | | | | |
| | LH ₂ Container Inlet | 1 | | | | | | | | | |
| | LOX Container Inlet | 1 | | | | | | | | | |
| | Engine Pump Purge Regulator | 1 | | | | | | | | | |
| | Engine Actuators | 2 | | | | | | | | | |
| | Pneumatic System | 2 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IVB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | P. U. System | 2 | | | | | | | | | |
| | Auxiliary Propulsion System | 22 | | | | | | | | | |
| | Hydraulic System | 2 | | | | | | | | | |
| | Ullage | 2 | | | | | | | | | |
| | Forward Skirt - Internal | 1 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.5 | Vibration - Total | 38 | | | | | | | | | |
| | Forward Skirt | 8 | | | | | | | | | |
| | Aft Skirt | 3 | | | | | | | | | |
| | Actuator & Attachment Points | 8 | | | | | | | | | |
| | Gimbal Point | 3 | | | | | | | | | |
| | LH ₂ Turbopump | 2 | | | | | | | | | |
| | LOX Turbopump | 2 | | | | | | | | | |
| | TM Rack | 0 | | | | | | | | | |
| | Electrical Gear, Aft Skirt | 6 | | | | | | | | | |
| | Electrical Gear, Forward Skirt | 6 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.6 | Flow Rate - Total | 4 | | | | | | | | | |
| | LH ₂ | 2 | | | | | | | | | |
| | LOX | 2 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.7 | Position - Total | 8 | | | | | | | | | |
| | Actuator | 2 | | | | | | | | | |
| | Main LH ₂ Valve | 1 | | | | | | | | | |
| | Main LOX Valve | 1 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IVB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|------|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | | | | | | | | | | | |
| | Gas Generator Valve | 1 | | | | | | | | | |
| | LOX Turbine Bypass Valve | 1 | | | | | | | | | |
| | GH ₂ Start Valve | 1 | | | | | | | | | |
| | P. U. System Ratio Valve | 1 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.8 | Event-Total | 52 | | | | | | | | | |
| | Container Valves | 16 | | | | | | | | | |
| | Engine System Valves | 6 | | | | | | | | | |
| | Engine | 9 | | | | | | | | | |
| | Gas Generator | 4 | | | | | | | | | |
| | Helium Control | 1 | | | | | | | | | |
| | Fire Detection | 1 | | | | | | | | | |
| | Heater | 1 | | | | | | | | | |
| | Start Tank | 3 | | | | | | | | | |
| | Switches | 8 | | | | | | | | | |
| | Switch Selector | 1 | | | | | | | | | |
| | Range Safety | 2 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.9 | Level - Total | 6 | | | | | | | | | |
| | LH ₂ Container | 2 | | | | | | | | | |
| | LOX Container | 3 | | | | | | | | | |
| | Reservoir Oil | 1 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.10 | Voltage, Current & Frequency - Total | 38 | | | | | | | | | |
| | Voltage - Static Inverter-Converters | 3 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
 "B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM S-IVB STAGE | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|------|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | Voltage - Chilldown Inverters | 8 | | | | | | | | | |
| | Voltage - 5 V Excitation Module | 2 | | | | | | | | | |
| | Voltage - Bus | 2 | | | | | | | | | |
| | Voltage - Batteries | 4 | | | | | | | | | |
| | Voltage - EBW Firing Units | 10 | | | | | | | | | |
| | Current - Batteries | 4 | | | | | | | | | |
| | Frequency - Static Inverter-Converter | 1 | | | | | | | | | |
| | Frequency - Chilldown Inverters | 2 | | | | | | | | | |
| | Frequency - 5 V Excitation Module | 2 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.11 | Miscellaneous - Total | 29 | | | | | | | | | |
| | P. U. System | 5 | | | | | | | | | |
| | Antenna Power Measurements | 8 | | | | | | | | | |
| | Liquid Gas Differentiator | 1 | | | | | | | | | |
| | Extensimeter | 4 | | | | | | | | | |
| | Range Safety Receiver Signal Strength | 2 | | | | | | | | | |
| | Telemeter Transmitter Output Power | 5 | | | | | | | | | |
| | Auxiliary Propulsion System Propellant Quantities | 4 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.12 | Strain - Total | 12 | | | | | | | | | |
| | Forward Skirt | 6 | | | | | | | | | |
| | Aft Skirt | 6 | | | | | | | | | |
| | | | | | | | | | | | |
| 3.13 | Speed - Turbopumps | 2 | | | | | | | | | |
| | | | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM INSTRUMENT UNIT | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| 5. | Instrument Unit Flight Measurements - Total | 304 | | | | | | | | | |
| 5.1 | Acceleration - Total | 7 | | | | | | | | | |
| | Longitudinal | 3 | | | | | | | | | |
| | Pitch | 2 | | | | | | | | | |
| | Yaw | 2 | | | | | | | | | |
| 5.2 | Acoustic - Total | 1 | | | | | | | | | |
| 5.3 | Temperature - Total | 60 | | | | | | | | | |
| | Thermoconditioning System | 21 | | | | | | | | | |
| | Platform Gas Bearing Supply System | 5 | | | | | | | | | |
| | ST-124M Inertial Platform | 2 | | | | | | | | | |
| | Horizon Sensor | 6 | | | | | | | | | |
| | Azusa | 1 | | | | | | | | | |
| | C-Band | 1 | | | | | | | | | |
| | Advance Guidance Computer | 2 | | | | | | | | | |
| | Data Adapter | 2 | | | | | | | | | |
| | Q-Ball | 1 | | | | | | | | | |
| | RF Assy., F1 | 1 | | | | | | | | | |
| | TM Assy., F1 | 1 | | | | | | | | | |
| | TM Assy., F2 | 1 | | | | | | | | | |
| | PCM/RF Assy., P1 | 1 | | | | | | | | | |
| | Inertial Data Box | 1 | | | | | | | | | |
| | ST-124M Electronic Box | 1 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM INSTRUMENT UNIT | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|-----|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | Battery | 3 | | | | | | | | | |
| | Compartment | 2 | | | | | | | | | |
| | Skin | 8 | | | | | | | | | |
| | | | | | | | | | | | |
| 5.4 | Pressure - Total | 15 | | | | | | | | | |
| | Delta P Pitch | 2 | | | | | | | | | |
| | Delta P Yaw | 2 | | | | | | | | | |
| | Dynamic Pressure | 2 | | | | | | | | | |
| | Thermoconditioning System | 4 | | | | | | | | | |
| | Platform Gas Bearing Supply System | 2 | | | | | | | | | |
| | ST-124M Inertial Platform | 1 | | | | | | | | | |
| | Horizon Sensor | 2 | | | | | | | | | |
| | | | | | | | | | | | |
| 5.5 | Vibration - Total | 29 | | | | | | | | | |
| | Mounting Rings | 8 | | | | | | | | | |
| | ST-124M Support | 6 | | | | | | | | | |
| | Panel - RF Assy., F2 | 2 | | | | | | | | | |
| | Panel - Air Bearing Supply | 2 | | | | | | | | | |
| | Panel - Flight Control Computer | 2 | | | | | | | | | |
| | Inertial Gimbal | 3 | | | | | | | | | |
| | Advance Guidance Computer | 3 | | | | | | | | | |
| | Data Adapter | 3 | | | | | | | | | |
| | | | | | | | | | | | |
| 5.6 | Flow Rate-Thermoconditioning System | 11 | | | | | | | | | |
| | | | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. SATURN IB MEASURING PROGRAM INSTRUMENT UNIT | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | A | B | A | B | A | B | A | B | A | B |
| 5.7 Position - Total | 12 | | | | | | | | | |
| Pitch Actuator | 5 | | | | | | | | | |
| Yaw Actuator | 5 | | | | | | | | | |
| Thermoconditioning System Control Valves | 2 | | | | | | | | | |
| | | | | | | | | | | |
| 5.8 Guidance and Control - Total | 59 | | | | | | | | | |
| Pitch Actuator | 5 | | | | | | | | | |
| Yaw Actuator | 5 | | | | | | | | | |
| Control Nozzles | 3 | | | | | | | | | |
| Accelerometer Pickup ST-124M | 3 | | | | | | | | | |
| Accelerometer Servo ST-124M | 3 | | | | | | | | | |
| Velocity Encoder | 0 | | | | | | | | | |
| Velocity ST-124M | 0 | | | | | | | | | |
| Pitch Program | 1 | | | | | | | | | |
| Roll Program | 1 | | | | | | | | | |
| Inertial Data Box | 2 | | | | | | | | | |
| Servo Box | 1 | | | | | | | | | |
| Gyro Pickup ST-124M | 3 | | | | | | | | | |
| Output Gyro Servo | 3 | | | | | | | | | |
| Attitude | 9 | | | | | | | | | |
| Gimbal Angle | 0 | | | | | | | | | |
| Horizon Sensor | 0 | | | | | | | | | |
| Advance Guidance Computer | 8 | | | | | | | | | |
| Accelerometer | 12 | | | | | | | | | |
| | | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
 "B" indicates number of useable measurements obtained per parameter during flight.

| IV. SATURN IB MEASURING PROGRAM INSTRUMENT UNIT | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|--|--------|---|--------|---|--------|---|--------|---|--------|---|
| | A | B | A | B | A | B | A | B | A | B |
| 5.9 RF and Telemetry - Total | 55 | | | | | | | | | |
| Azusa | 2 | | | | | | | | | |
| Mistram | 4 | | | | | | | | | |
| C-Band | 3 | | | | | | | | | |
| ODOP | 3 | | | | | | | | | |
| Radar Altimeter | 6 | | | | | | | | | |
| Command Receiver | 1 | | | | | | | | | |
| Guidance Decoder | 1 | | | | | | | | | |
| F1 Telemeter | 2 | | | | | | | | | |
| F2 Telemeter | 2 | | | | | | | | | |
| P1 Telemeter | 2 | | | | | | | | | |
| S1 Telemeter | 2 | | | | | | | | | |
| AROD | 27 | | | | | | | | | |
| 5.10 Signals - Total | 7 | | | | | | | | | |
| Acceleration Switch | 1 | | | | | | | | | |
| Switch Selector | 6 | | | | | | | | | |
| 5.11 Voltage Current & Frequency - Total | 13 | | | | | | | | | |
| Measuring Voltage | 1 | | | | | | | | | |
| Command Voltage | 1 | | | | | | | | | |
| Voltage, 56 VDC Supply | 1 | | | | | | | | | |
| Frequency, 250 VA Inverter | 1 | | | | | | | | | |
| Voltage, 250 VA Inverter | 3 | | | | | | | | | |
| Bus Voltage | 3 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

| IV. | SATURN IB MEASURING PROGRAM INSTRUMENT UNIT | SA-201 | | SA-202 | | SA-203 | | SA-204 | | SA-205 | |
|------|---|--------|---|--------|---|--------|---|--------|---|--------|---|
| | | A | B | A | B | A | B | A | B | A | B |
| | Battery Current | 3 | | | | | | | | | |
| 5.12 | Rate - Total | 27 | | | | | | | | | |
| | Angular Velocity | 12 | | | | | | | | | |
| | EDS Rate Switch | 9 | | | | | | | | | |
| | EDS Locking Relay Monitor | 3 | | | | | | | | | |
| | EDS Wheel Speed | 3 | | | | | | | | | |
| 5.13 | Miscellaneous - Total | 8 | | | | | | | | | |
| | Horizon Sensor, AC Monitor | 4 | | | | | | | | | |
| | Horizon Sensor, Search Track | 4 | | | | | | | | | |
| 6. | Instrument Unit Blockhouse Measurements - Total | 27 | | | | | | | | | |
| 6.1 | Temperature - Total | 13 | | | | | | | | | |
| | Thermoconditioning System | 3 | | | | | | | | | |
| | Platform Gas Bearing Supply System | 1 | | | | | | | | | |
| | ST-124M Inertial Platform | 1 | | | | | | | | | |
| | Advance Guidance Computer | 1 | | | | | | | | | |
| | Data Adapter | 1 | | | | | | | | | |
| | Inertial Data Box | 1 | | | | | | | | | |
| | ST-124M Electronics Box | 1 | | | | | | | | | |
| | Battery | 3 | | | | | | | | | |
| | Compartment | 1 | | | | | | | | | |

Legend: "A" indicates number of measurements per parameter to be made per flight.
"B" indicates number of useable measurements obtained per parameter during flight.

SECTION V.

ILLUSTRATIONS

| | | |
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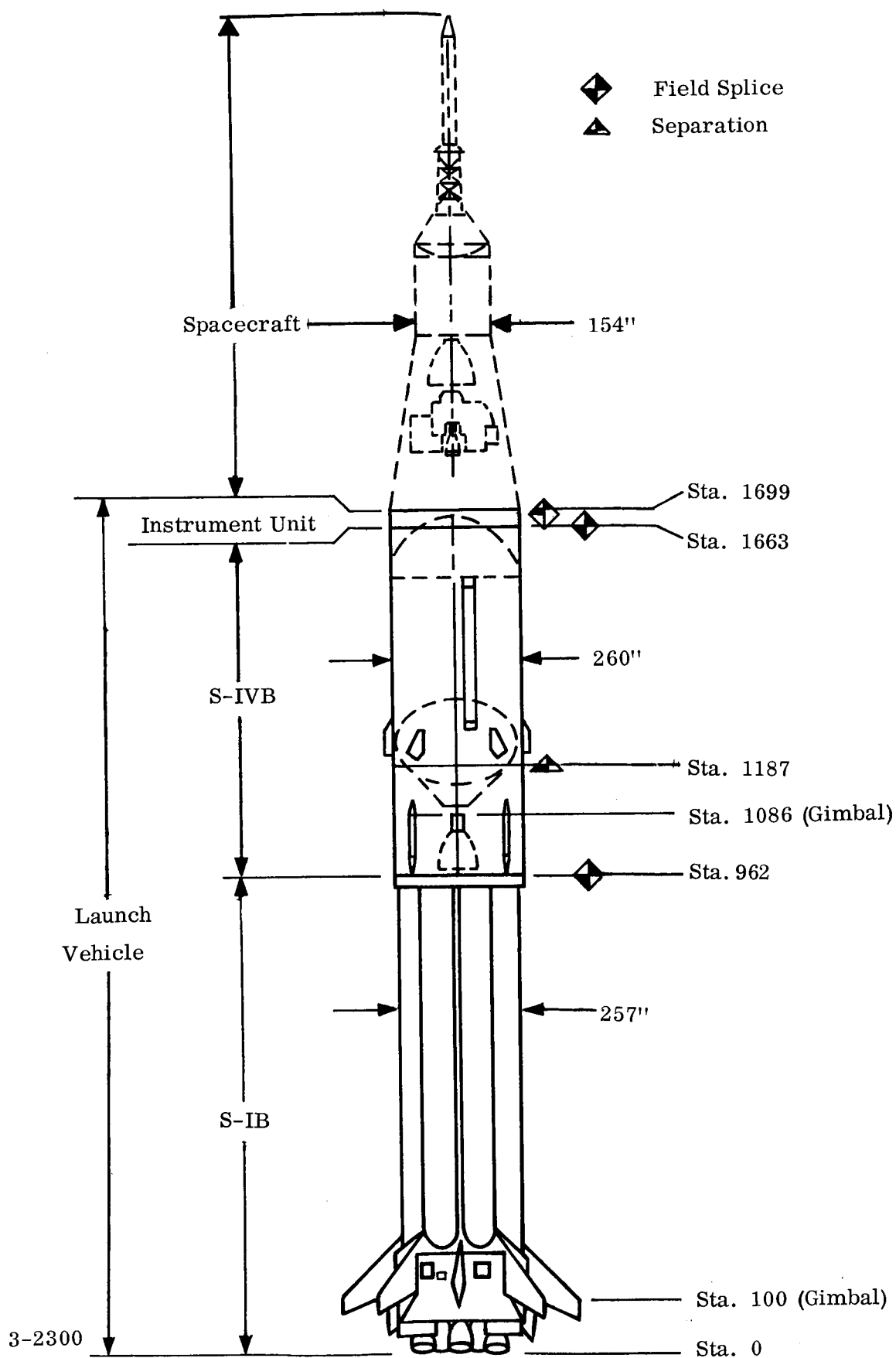


Figure 1. SATURN IB Configuration

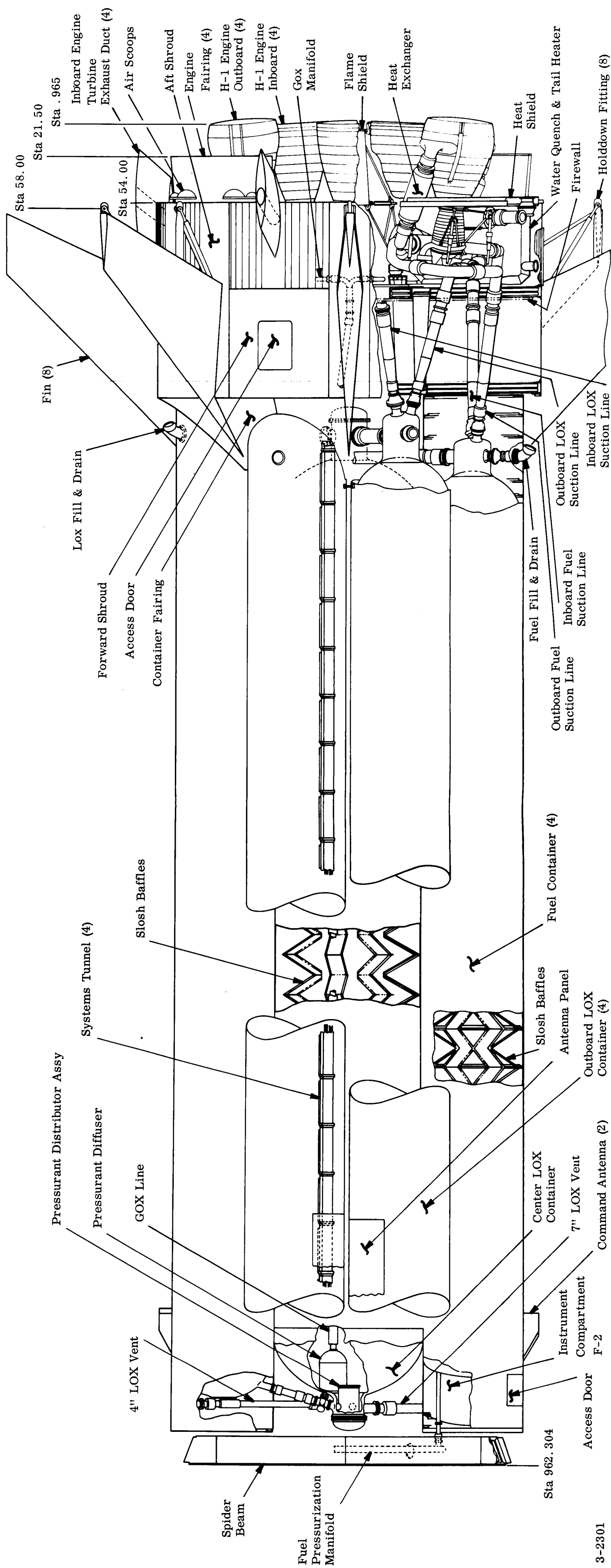


Figure 2. S-IB Stage Inboard Profile

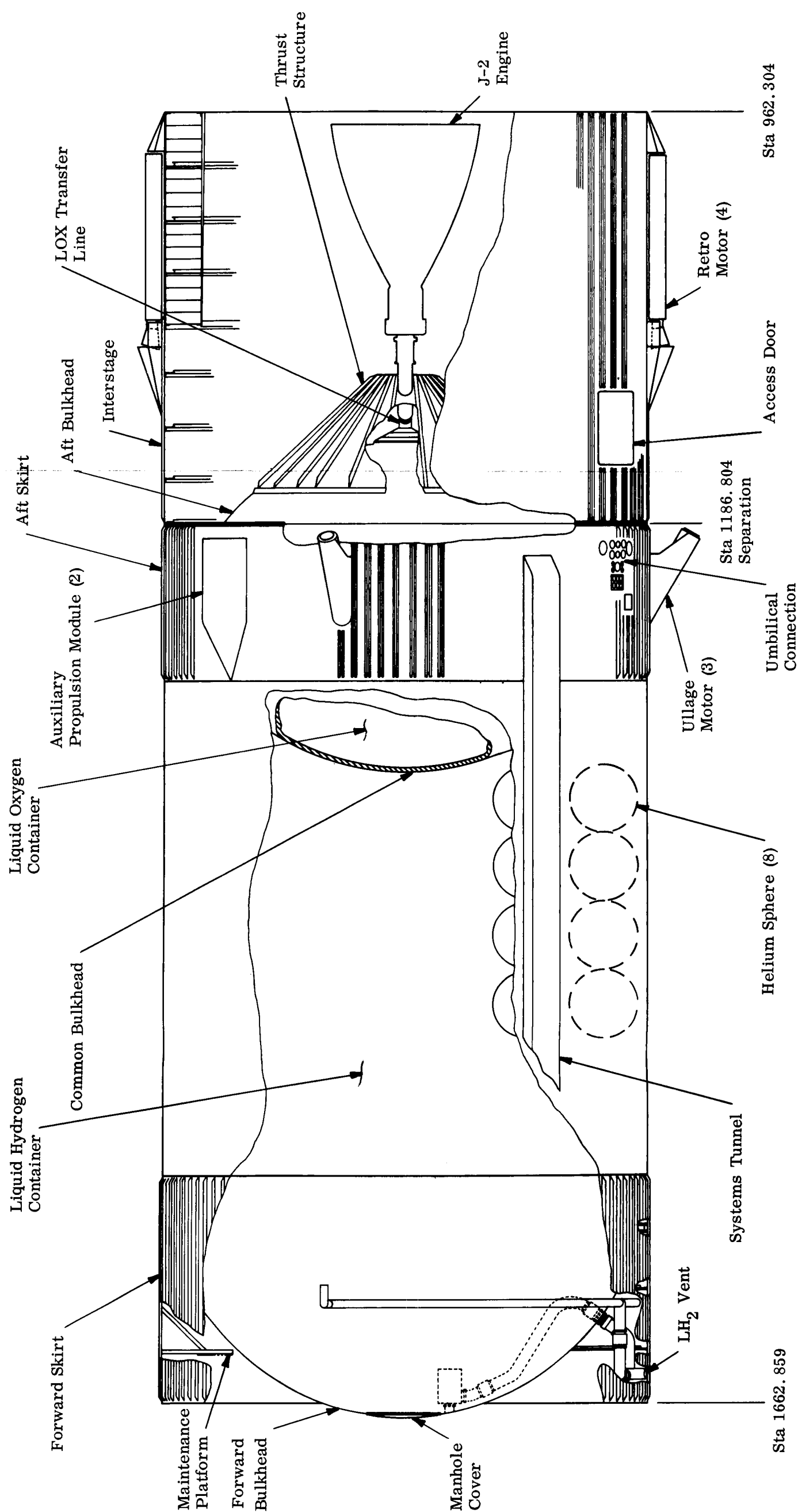
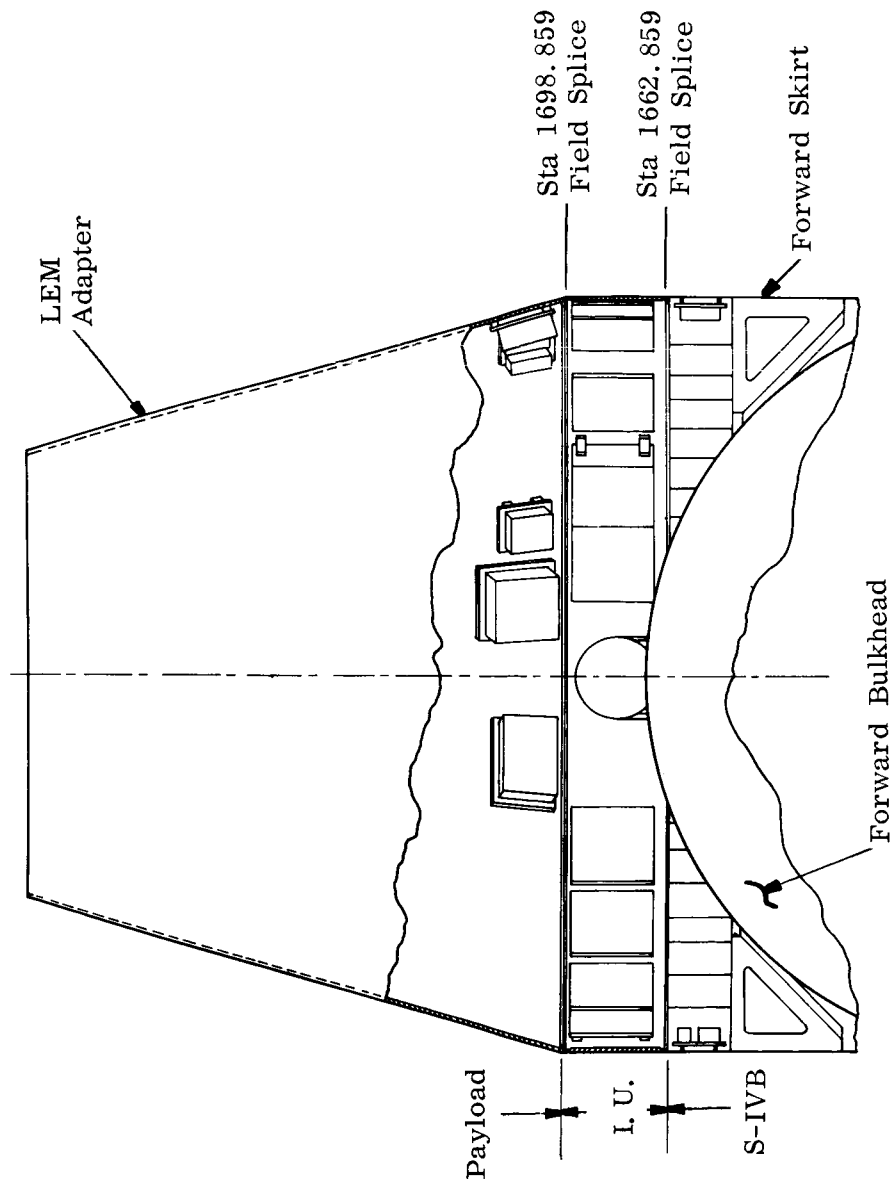


Figure 3. S-IVB Stage Inboard Profile



3-2303

Figure 4. Instrument Unit Arrangement

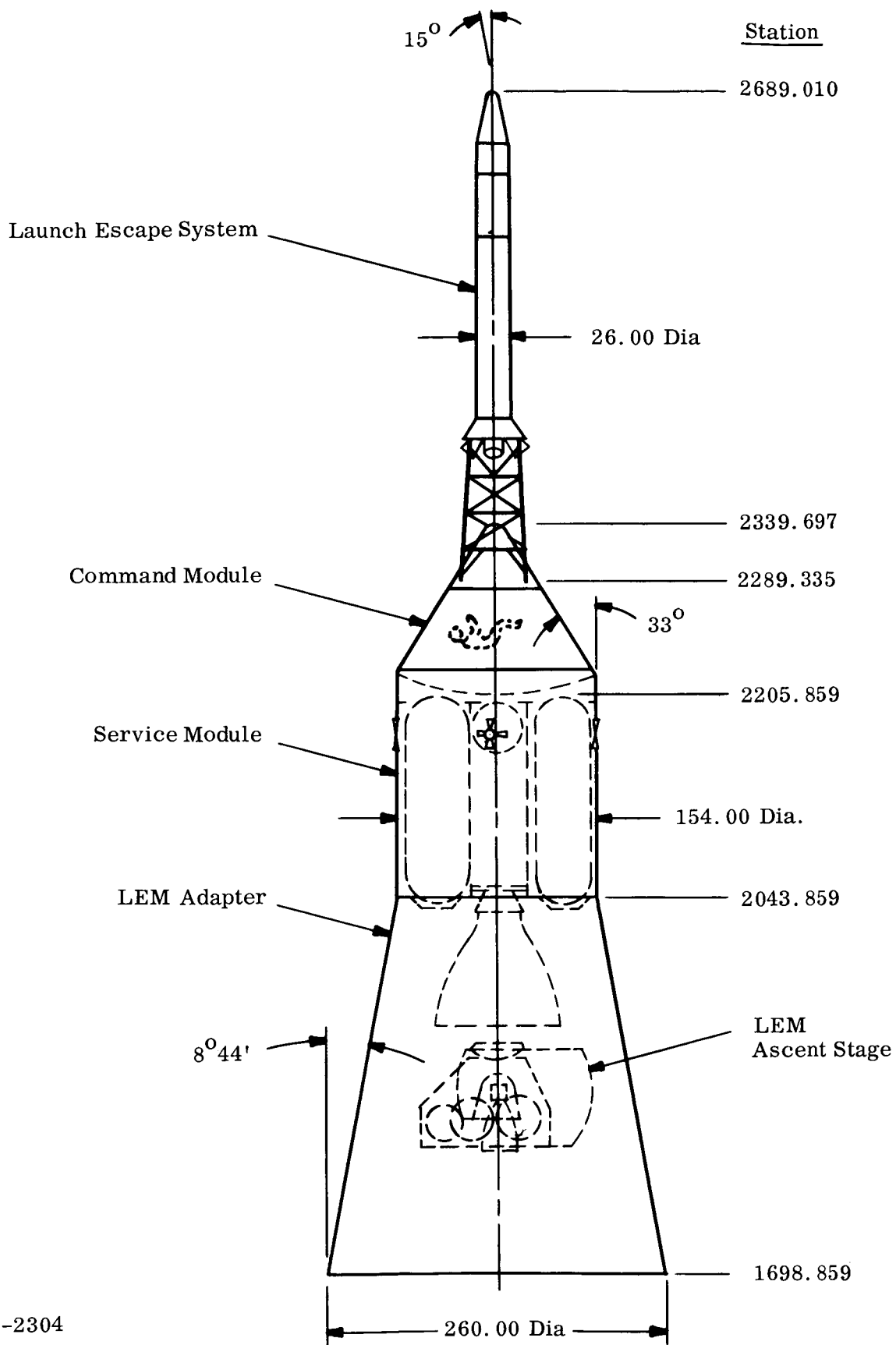


Figure 5. SATURN IB Payload

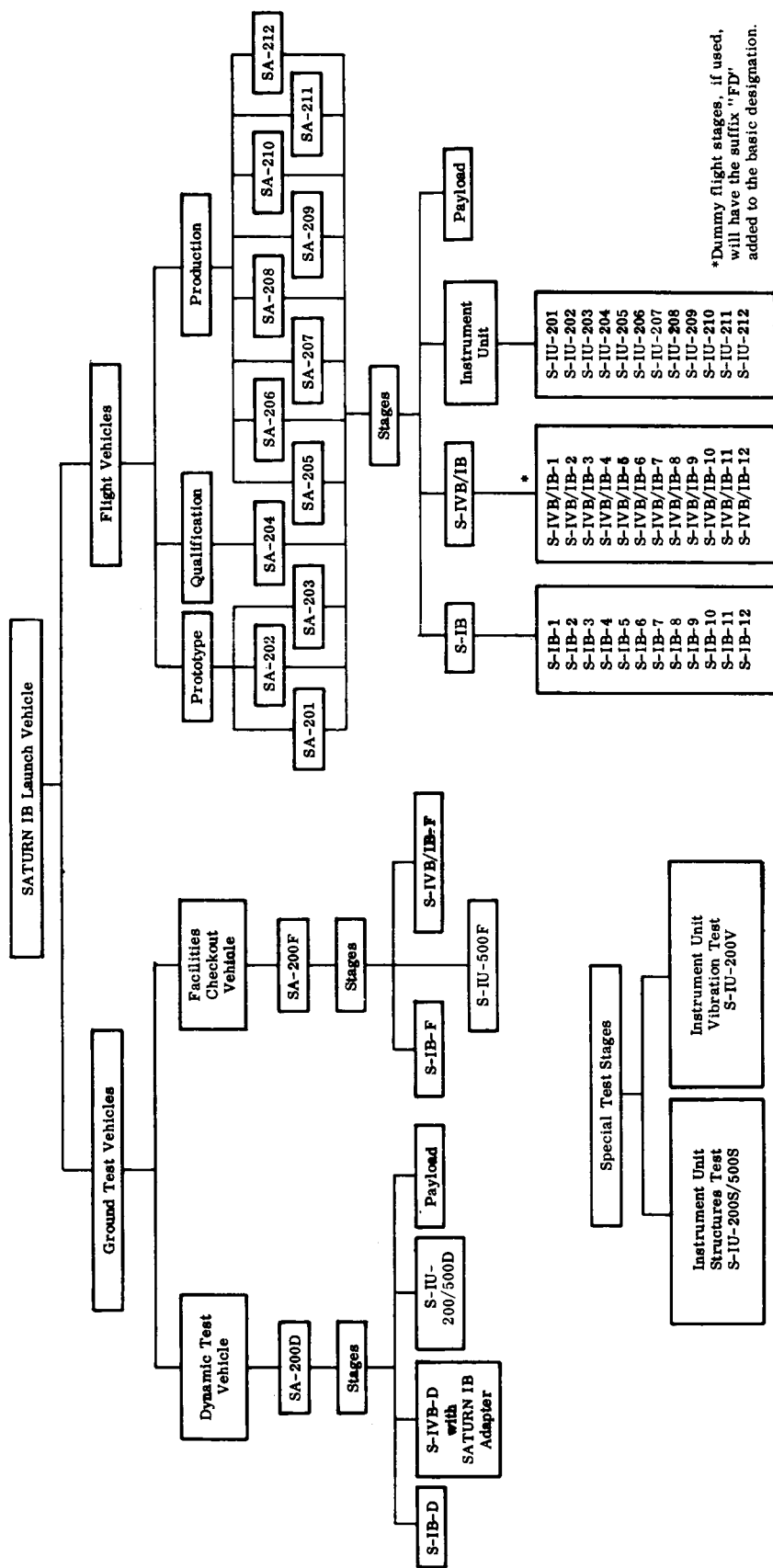
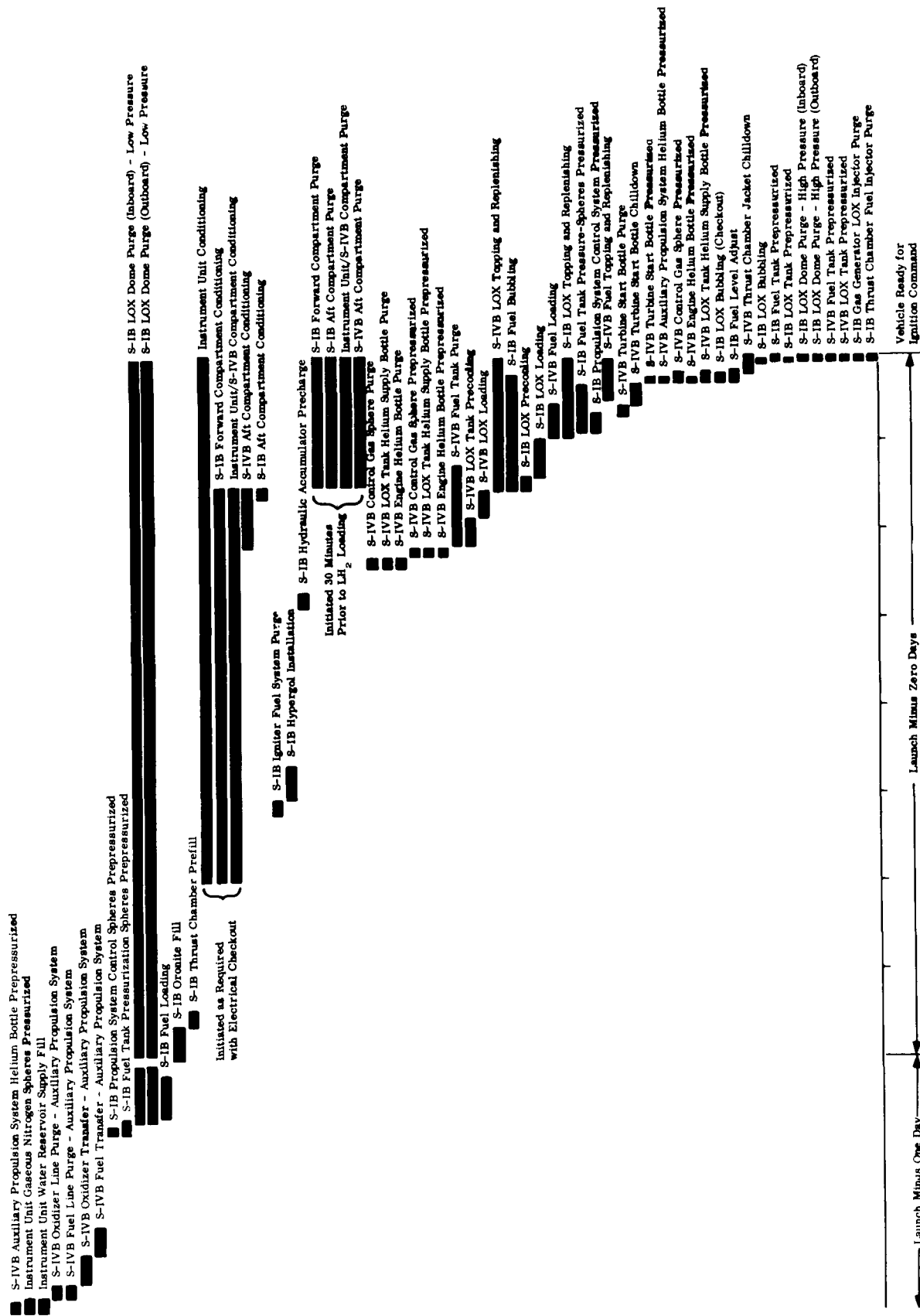
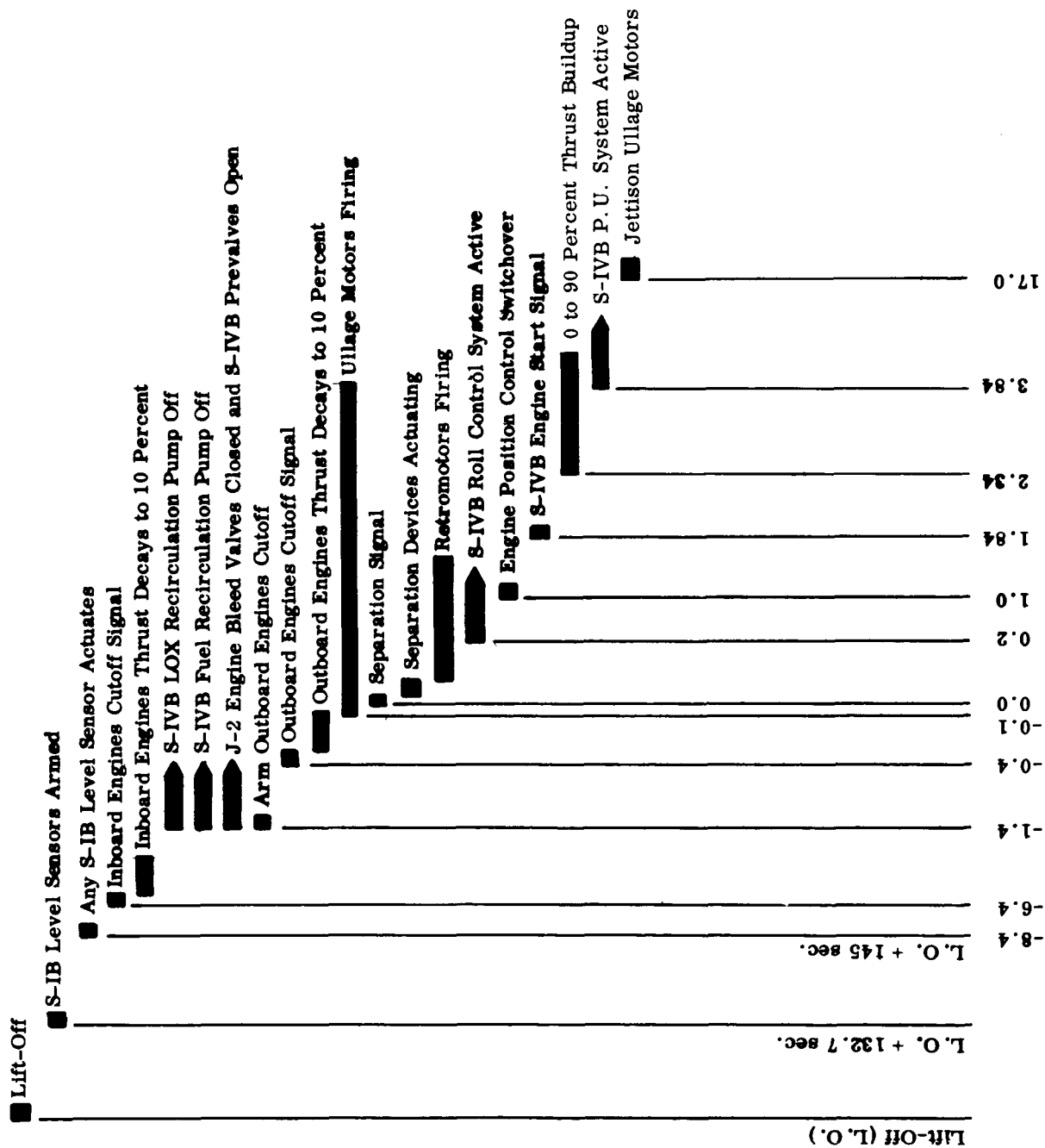


Figure 6. SATURN IB Nomenclature



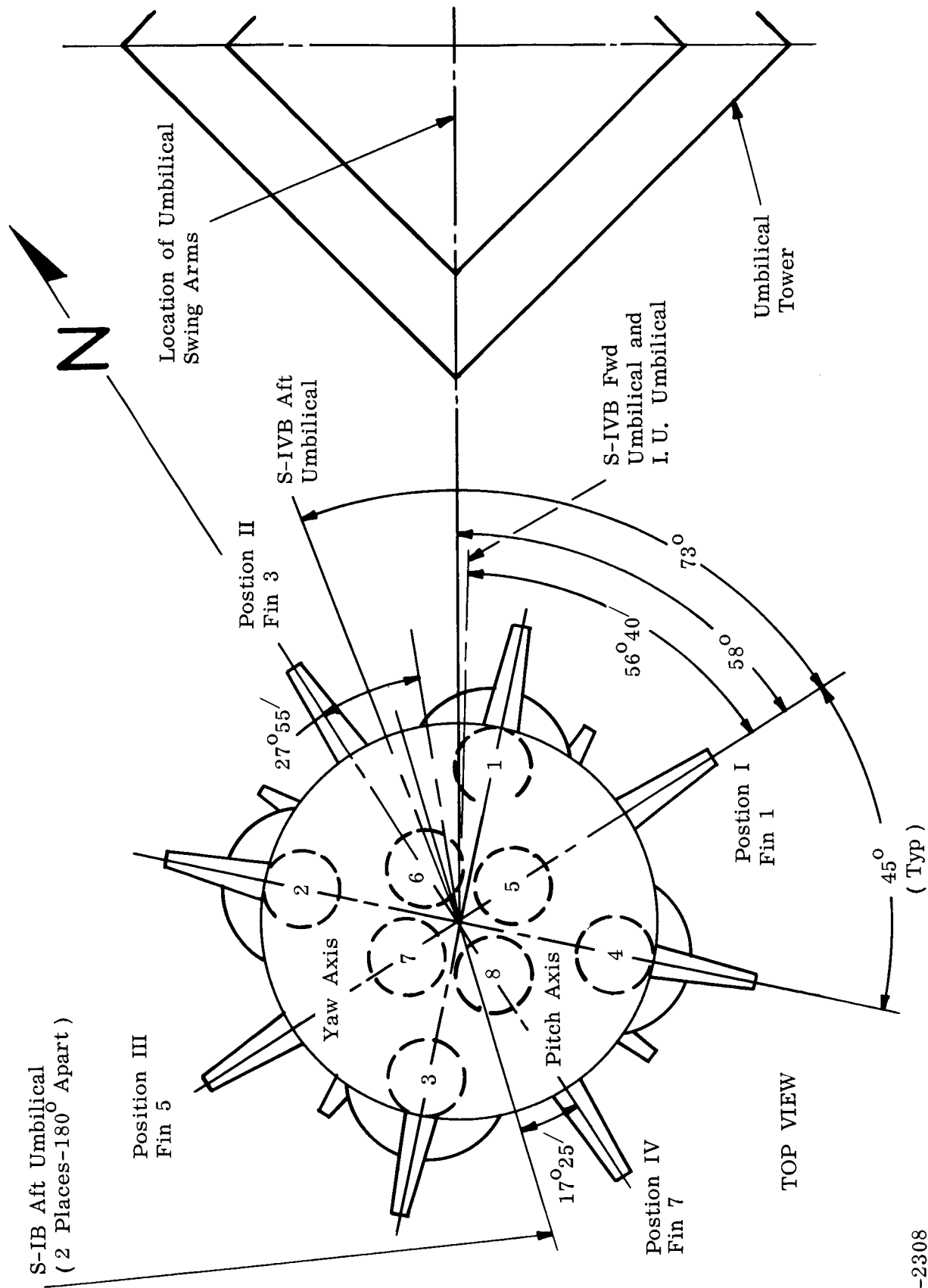
3-2306

Figure 7. SATURN IB Loading Sequence



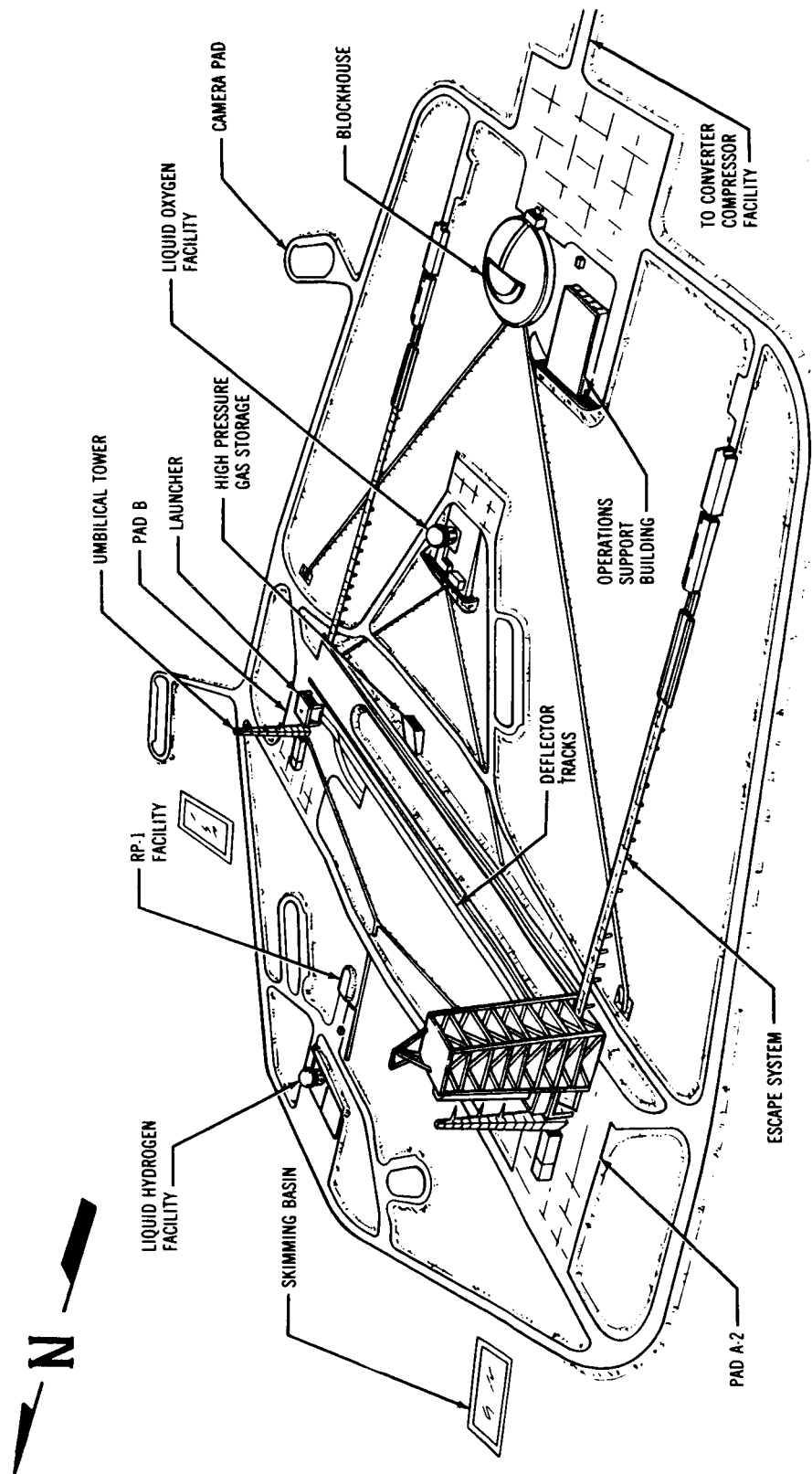
3-2307A

Figure 8. S-IB/S-IVB Separation Sequence



3-2308

Figure 9. SATURN IB and Umbilical Tower (VLF 37) Orientation



STORAGE CAPACITY

- LOX ~ 125,000 GAL.
- RP-1 ~ 49,000 GAL.
- LH₂ ~ 125,000 GAL.
- LN₂ ~ 35,000 GAL.

3-2309

Figure 10. Launch Complex 37